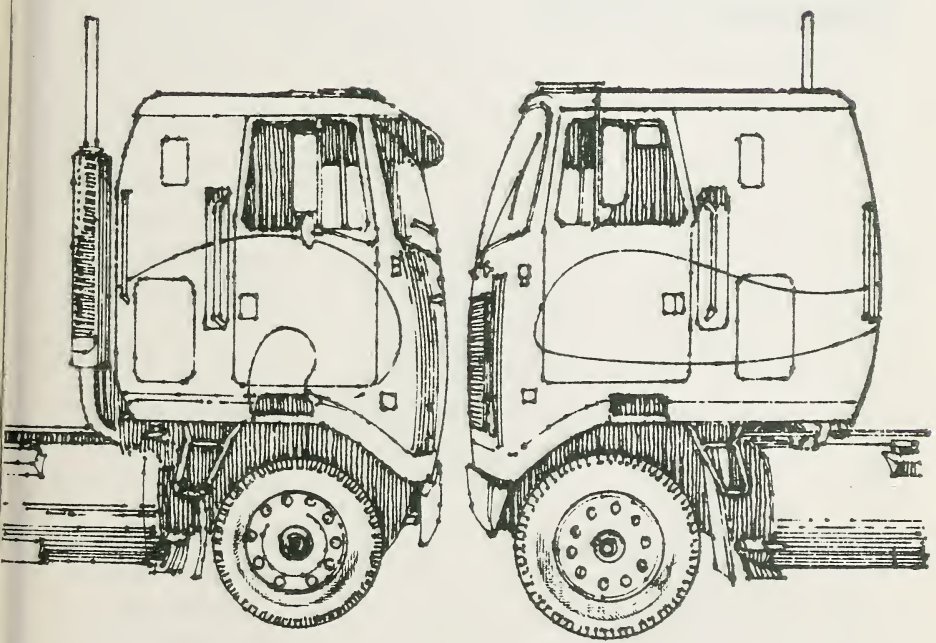
TRUCKING: Lease or Buy?



U.S. DEPARTMENT OF AGRICULTURE / FARMERS COOPERATIVE SERVICE / FCS RESEARCH REPORT 42

PREFACE

A major farmer cooperative decided to lease trucks operating out of its forward distribution centers, but it also decided to own the trucks operating from its central base.

Another cooperative decided to lease, because it helped improve the cooperative's debt-equity ratio; still another leased because of investment tax credit sharing with the leasing company.

On the other hand, a cooperative decided not to lease, because it was more economical to buy.

Why these diverse courses of action recently on leasing of transportation equipment? The answer to this question is that for each situation the deciding criteria are different. To provide guidelines for making the lease or buy decision, Farmer Cooperative Service examined research literature, case studies, and cash flow studies for advantages and disadvantages. Additionally, personal interviews were conducted with four major cooperatives and several leasing organizations.

CONTENTS

HIGHLIGHTS

Changing business conditions and attitudes have caused cooperatives to examine leasing as an alternative to buying of capital equipment. Lack of credit availability and the high cost of debt are among the conditions that have led to the change. Attitudes such as "never borrowing unless absolutely necessary" are being replaced. This attitude about unnecessary long-term commitments or debt has carried over from the individual farmer to his cooperative. Depending on the individual cooperatives' situations, many are discovering that there can be advantages to leasing.

Farmer Cooperative Service (FCS) has found that with the many factors to be considered, a quantitative economic decision alone is not enough. The set of circumstances surrounding the decisionmaking process for each cooperative is so different that no one formula, quantitative or qualitative, can apply to all cooperatives. This study has attempted to establish useful guidelines covering the important criteria that should be considered in determining whether to lease or to buy.

Operation of one's own trucking fleet, rather than use of contract or public carriage, generally is prompted by economic, service, or marketing reasons. Once this decision is made, then it is necessary to evaluate the advantages and disadvantages of buying and/or leasing.

Our study has found that, although buying is frequently the most economical method, leasing can offer many advantages.

Because of the financial structure of cooperatives, the possibilities of leasing can often present a unique set of circumstances.

In addition to the common leasing benefits of improved cash flow (no down payment) and a better debt-equity ratio, cooperatives are also finding ways to take advantage of the investment tax credit and accelerated depreciation schedules. Until recently only noncooperatives had been able to take full advantage of these opportunities.

To properly evaluate leasing, it is important to be aware of the four basic types of leases that are available (sale and lease back, service lease, financial lease, and leveraged lease). It is then necessary to understand the particular advantages of each and relate this information to a particular set of circumstances. The study indicates that it is important to tailor the lease to the needs of the cooperative rather than make the cooperative fit the lease.

Once the type of lease is decided upon, it is then necessary to carefully select the leasing company that will best fill the need.

Information is provided in the study to help cooperatives determine the type of lease best suited for their particular needs and also help in the selection of a leasing company.

Included are case studies of operating cooperatives that have recently examined the benefits of leasing versus buying. These examples show what analyses were made and what were the key variables in each process. The examples illustrate the levels of importance that were placed on the different factors considered by each of the cooperatives.

In addition, three cash flow examples are provided to indicate the type of examination that can be made from present value analyses.

TRUCKING: Lease or Buy?

Eldon E. Brooks
Senior Agricultural Marketing Specialist
James R. Jacks
Agricultural Economist

BACKGROUND

With capital equipment costs continually spiralling upward, more farmer cooperatives are examining leasing as a means of acquiring the use of transportation equipment.

This study was undertaken to provide useful guidelines for cooperatives that need to decide whether to lease or to buy.

Early in this research project, it was found that a cooperative could not reach a correct decision based on a quantitative economic analysis alone. The set of circumstances surrounding the decisionmaking process for each cooperative is so different that no one formula, quantitative or qualitative, can apply to all cooperatives.

For example, financial structures of cooperatives often present a unique set of circumstances. And because of the inability of cooperatives to fully utilize tax advantages heretofore, some are devising alternative methods of lease arrangements. These programs enable the lessor to take the tax benefits and pass part of the savings to the lessee in the form of lower rental charges.

FOR HIRE OR PRIVATE CARRIAGE?

The decision to buy or lease trucks is made because the cooperative has decided it wants to control the movement of its trucks. Several reasons prompt this strategy.

The cooperative may have special needs or service requirements that common carriers cannot or will not provide. The need could be for a particular type of petroleum truck, refrigerated trailer or other special vehicle. A desire to reduce costs is of primary concern to all organizations and is often a strong reason for buying or leasing vehicles. If a cooperative has the economies of scale, which enable it to fully utilize transportation equipment, then it is frequently more profitable to go the private carriage route and buy or lease its equipment. Perhaps the most frequent reason to have control is to assure that vehicles will be available when the cooperative needs them to move its products. Trucking firms or trucking cooperatives may not always have vehicles available at the particular moment they are required. For an organization whose business depends on prompt delivery (so that produce won't spoil or a customer won't be disappointed by late delivery), it is most important that reliable schedules be maintained. Hence, many cooperatives find it desirable, even necessary, to control their trucking operations.

A cooperative's managing of its own trucks is an offshoot of this same situation. When trucking lines schedule their shipments, they often do so with the trucking line's objective in mind, not necessarily being concerned with the shipper's objective. If by using an indirect route or delayed schedule the trucker can increase the utilization of his trucks, he will often do so although it may slow delivery for some of the cargo. No individual user of a public carrier can expect optimal service on every shipment.

Reduced costs and service needs are the primary reasons for changing any business strategy. If the producer has the volume necessary to fully utilize his own trucks, then private carriage will generally be found to be the most economical. If the producer does not have the volume to efficiently utilize his trucks, then public carriage is likely the most economical, though it may not always provide the service level desired.

BUY OR LEASE DECISION FACTORS

Once the decision to operate a trucking fleet is made, the buy or lease decision is the next step.

Assuming all economies of scale are equal and ample financing is available at reasonable rates, the decisionmaker is usually better off, from an economic standpoint, to buy his equipment rather than lease it. The reason for this is very simple—the lessor is including a profit margin, as all businessmen endeavor to do, and that profit margin is additional cost that the lessee would not incur if he owned rather than leased his trucks.

However, it is obvious that there are often factors that are not equal between lessee and lessor or there are considerations other than economic. In fact, there are many matters that have to be examined and considered before one can make the buy or lease decision with reasonable assurance that the correct choice has been made. The following factors were found to be those most often considered.

Available Credit

Credit is often a factor swaying the buy or lease decision. With truck tractors costing more than $40,000 each, substantial capital investment is required to purchase a sizable fleet. When an organization does not have extensive cash resources, an expenditure this size could overburden its debt-equity ratio. A cooperative can be very successful, but it still must be financially aware of its cash position. If cash reserves are limited, a cooperative may have to lease vehicles to preserve cash for other revenue-generating operations of the organization. In this event the leasing company will handle the down payment and charge the lessor a monthly bill based on usage and/or time. The balance sheet implication of buying is that a downpayment either increases the debt or decreases the equity. This may raise the organization's debt-equity ratio to an undesirable level, reflecting a lack of liquidity and an overleveraged situation. A lease would have no effect on this ratio because a lease is an off-balance sheet item. However, this may change soon, according to Internal Revenue Service (IRS) sources.

Taxes

When capital expenditures for trucking equipment are made, an investment tax credit (ITC) is available to the purchaser.

This amounts to 10 percent of the total purchase price. The tax credit is a direct deduction from taxes, and is valuable to those organizations able to take advantage of it. Another tax consideration is accelerated depreciation. For tax purposes it is sometimes advantageous for the vehicle user to write off the trucks as quickly as possible using double declining balance or sum of years depreciation instead of straight-line. This decreases net income in the early years; thus, for the moment at least, reducing the income tax burden that it would otherwise have to pay. The net effect is that in later years there will be less depreciation to deduct, and taxes will be equalized. However, by postponing the taxes, it allows the use of the money for other purposes during the early years while the equipment is new.

The problem with these tax advantages is that to utilize them one must have net income to write them off against. The most obvious example of an organization that cannot take advantage of these characteristics is a company that has lost money consistently over several years or one that has had a large recent writeoff. Unable to use the ITC or accelerated depreciation, it loses the benefits. Cooperatives do not normally generate "net income" to any real extent; therefore, they are unable to fully use the ITC or accelerated depreciation. Cooperatives are only allowed to use the ITC at the same percentage that they retain earnings. For example, if a cooperative retains 10 percent of its patronage refunds, then it is able to deduct 10 percent of its ITC. If it retains a low percentage, the ITC is largely unused. A strategy used by some cooperatives to avoid a total loss of writeoff is to lease the trucks and to allow the lessor, assuming the lessor is a profit-making organization, to take the tax advantage. The lessor can then share the savings by passing part of the benefits back to the lessee in the form of lower rental charges. This is the only alternative available to cooperatives, because the IRS will not allow cooperatives to pass the ITC to their members, unless one member dominates the use of the equipment. If one member does dominate the usage, then he can take the tax credit; but this is an unusual situation in a cooperative.

Budgeting Strategy

As important as the tax advantages are, many other variables are to be considered. One is the precision of the budgeting strategy. With leasing, cash flows can be more accurately fore-

casted and planned. The cash outflows will be contractually arranged so that no abrupt replacement charges or expensive repair bills crop up to ruin monthly budgets. The added precision in budgeting allows management to plan funds flows without major concerns about emergency expenditures. An important aspect to leasing is that the payments are made concurrently with the generation of income. This means the organization's return on investment is much higher, because it does not have a large amount of capital invested in its trucking operation. The packaging effect of leasing that groups all the charges into one sum can be very attractive to some organizations as it places vehicles, gas, licensing, maintenance, etc., into one figure. However, this packaging effect can also reduce the cooperative's opportunity to better manage these costs.

Administrative Considerations

The management and administrative responsibilities of the lessee are often reduced by the leasing arrangement. The lessor often can handle the licensing and permits required on the trucks used for interstate movements, thus reducing the need for interstate licensing specialists in the transportation division of the cooperative. The various State taxes can also be handled by the lessor, as can the insurance. Another important administrative benefit is the vendor relationship between the lessor and the suppliers. The lessor has full-time buying experts who make it their business to be aware of the market value of various vehicles and be in constant contact with the vendors. This relationship on the part of the lessor enables the lessee to be free from time-consuming discussions with vendors.

Obsolescence and Heavy Use

Specialized equipment is one reason some people lease. When the lessee is in an industry in which quick obsolescence of equipment can occur, he often finds it advantageous to lease. This enables the lessee to avoid large costly investments in equipment that may have to be exchanged in a relatively short period. The other side of the coin, in leasing for this reason, is that generally the lessor will charge a premium rental to compensate himself for the risk of ending up with obsolescent equipment. Another related reason is that the lessee may require equipment to be used in some very severe way. Trucks used in a rock quarry or for heavy construction may be leased to avoid replacement costs should the equipment break down.

Maintenance Programs

A reason for leasing that is most persuasive for many cooperatives is the maintenance aspect of a full service lease. These leases are usually made on a mileage rate and often with a discount factor that goes into effect after a specified number of miles. The mileage rate lends, to some extent, a predictability to the costs. The primary advantage of a full service lease is that it includes immediate access to a network of affiliated maintenance stations throughout the United States. If a truck should break down on the road, the driver can use a special credit card and receive immediate service at a nearby repair station, at no additional cost to the lessee. If there is a significant delay in returning the vehicle to service, the lessor will provide a substitute vehicle of the same type. This feature of a full service lease helps to reduce delays in deliveries and can be extremely valuable to an organization working with tight delivery schedules and/or perishable merchandise.

Volume Purchasing

An advantage that lessors often like to cite is the benefit of volume buying of vehicles. The buying advantage was touched on briefly in the discussion of administrative considerations, but the implications run deeper than that. It is true that suppliers tend to work closer with and provide more service to accounts that buy thousands of vehicles than to an account that purchases 10 or 20 vehicles. The lessors' constant dealing with the vendors keeps them well informed of the best purchase benefits and technical advances. A smaller operator may not have the resources to keep so informed. When a company involves itself in volume buying, it tends to receive faster and more complete service on its warranty arrangements. This is something that the average purchasers do not always take full advantage of, even though the savings can be significant. Another volume advantage is that once the orders are placed, the volume buyer is more likely to be assured of a high priority on delivery schedules. This can be of paramount importance if the vehicle is an important component of the transport fleet. Another advantage for the large volume purchaser is his contact with the vehicle replacement part suppliers. Tires and such materials are another area of possible advantage for the volume buyer. The discount, warranty and delivery advantages for

the vehicle also hold true for tires, spare parts, and optional equipment.

Disposal of Used Equipment

An advantage that the leasing companies like to emphasize is their ability to obtain maximum value for used vehicles at the moment of resale. The volume lessors have staff personnel who continuously study the used vehicle markets to time the sale of used equipment to maximize return. These organizations pride themselves on their ability to garner income far in excess of the book value of the equipment. They do this not only by timing of the sale but by selling the vehicle in the most advantageous geographical market at that particular time. For example, one organization explained that they wished to dispose of a vehicle that was being used in Alaska but at the time the used vehicle market in Alaska was glutted, causing a depression in price. The company transported that vehicle from Alaska to a more profitable market in the United States. The difference in net income amounted to several thousand dollars.

The timing of the disposal of used vehicles is also important from a maintenance standpoint. As the vehicles age, maintenance costs increase. At some point in time it becomes financially advantageous to dispose of the vehicles and purchase new equipment. Various inflationary pressures are involved, also. To ascertain the particular point of time to sell is very difficult as it requires substantial study and empirical data. Few, if any, small cooperatives have the information or expertise to make these types of studies. The volume of trucking in these cases simply does not warrant undertaking such a project. Any reasonably sized leasing company has a substantial truck fleet, and it is imperative that it make such studies. How much money this saves the lessee is difficult to pinpoint, but there are savings.

Fuel Supply

Another consideration that should be evaluated is the question of fuel availability. After the last fuel crisis it became apparent that assurance of the availability of fuel can be very important to truck fleet operations. Some cooperatives have banded together to improve their supply situation by setting up their own energy supply lines. An alternative solution is to deal with leasing companies that have existing fuel supply arrangements.

TYPES OF LEASES

While this discussion will indicate many advantages to leasing, it must be remembered there is little a leasing company does that cannot be duplicated by a major cooperative (except for the investment tax credit), assuming it has the proper economies of scale and the management expertise. A cooperative with a sufficiently large fleet can match the lessor's advantages point for point and in addition will not have to pay the profit margin that the lessor takes.

If, after considering the various inputs and evaluating them, the final decision is to lease, the next decision is what kind of lease to take. Obviously this decision is heavily influenced by the motivational aspects of the decision to lease. For example, if the primary reason for leasing is to acquire the coast-to-coast maintenance assurance, then a full service lease is probably what is needed.

Sale and Lease Back

The sale and lease back lease has the lessee purchase the equipment and then sell it to the lessor who leases it back to the lessee for the life of the equipment. In this type of lease the lessee controls the purchase and still avoids the large initial purchase investment because he is immediately compensated for the purchase by the lessor. Another type of sale and lease back involves the lessee having an immediate cash need. He takes equipment he already owns, sells it to a leasing company, and then leases it back.

Service Lease

The service lease is a very popular type of lease. The nationwide maintenance guarantee is the primary benefit of the service lease. Most cooperatives do not have enough volume in every section of the country to justify operating nationwide maintenance shops. However, many of the larger service leasing organizations do operate shops or have access to shops throughout the United States. Not only will they make emergency road repairs but in cases of undue delay they will issue the lessee a substitute vehicle so that the merchandise is not stranded. This reduces the chance of losing a perishable load and/or defaulting on a delivery schedule due to a major breakdown. The lessee is

also saved the aggravation and time of concerning himself with arranging for repairs by long distance telephone and trying to get the merchandise back on the road. The supervisory responsibility of the lessee's management is less with this type of lease since the lessor will handle most of the line management of the maintenance crews.

With a full service lease under which the lessee pays a fixed rate per mile, the lessor may include an incentive to maximizing the mileage that a vehicle is utilized. This incentive is generally in the form of a lower mileage rate to take effect after a predetermined number of miles has been reached. The negotiated incentive rate can be substantially lower than the base rate, even to the point where it is actually below cost. In this case it can be to the cooperative's advantage to place these trucks in service where they will be fully utilized to accumulate miles.

There are cancellation clauses on most service leases, and the cancellation terms are generally not prohibitive; so, if the arrangement does not fulfill expectations, there can still be other alternatives available.

Financial Lease

Even more common than the service lease is the financial lease. As indicated by the name, the major reasons for selecting this option are financial reasons such as opening up additional lines of credit, increasing and improving financial ratios, and tax benefits. This differs from the service lease, its main attractions being operational advantages. In the financial lease the lessee selects the equipment and negotiates price and delivery terms (in conjunction with experts provided by the lessor). The lessor will then purchase the equipment and lease it to the lessee according to the terms of the contract. In an open-ended financial lease the lessee is responsible for the salvage value of the equipment. If the sale price of the equipment is less than the book value agreed upon, the lessee must reimburse the lessor for the difference; however, if the sale price is greater than book value the difference goes to the lessee. In a closed end lease the lessee has no responsibility for or claim to the salvage value's differential to the book value. Another aspect of the financial lease is that if a leasing company only offers financial leases, and the leases are offered at favorable terms, a potential lessee can establish a separate contract for maintenance from a service lessor or other such

organization, in tandem with the financial lease. This can sometimes be more attractive than a straight service lease because it allows for separate contract negotiations.

The financial lease is the type of lease that provides the best opportunity for taking advantage of the investment tax credit by passing the ITC benefits to the lessor in exchange for a lower lease rate.

Leveraged Lease

Another type of lease is the leveraged lease. This strategy is usually utilized on large leases involving several million dollars. However, some contracts of less than one million dollars have been negotiated. The leveraged lease is essentially one where the lessor is more of a financial agent for the lessee. The lessor finds investors who can utilize the investment tax credit and the accelerated depreciation. Once the package is put together the investors put up a large percentage of the purchase price, the lessee leases the equipment to the lessor, and the investors take the tax advantages for themselves. Some of the tax benefits are then passed back to the lessee in the form of lower lease payments. The actual process is more complicated, involving trustees and other matters, but, for the purpose of this discussion, suffice it to say that the investors are able to obtain a satisfactory return on their money from the tax benefits and rental income. The lessee in turn gets the use of the equipment without a major investment. This type of lease can be very useful to those cooperatives who cannot utilize the tax benefits of the investment tax credit or accelerated depreciation schedules.

FEATURES OF A LEASE

When the lessor is arranging the lease, he must be aware that there are a number of IRS conditions to a true lease. These conditions spell out a clear-cut difference between leasing and outright purchase. One such condition requires the lease cover less than 30 years (this condition is not a normal concern for truck leasing but other equipment leases may be affected). The rent must also generate a reasonable rate of return to the lessor. The renewal option must be bonafide in the sense that the lessee must be allowed to take outside bids and change lessors if he wishes. Another aspect of a true lease is that the purchase option must

give no preference to the lessee in the sense of a lower purchase price. At the present time it is not a requirement to show lease commitments on the balance sheet. However, this may change in the near future and the balance sheet will have to note any leasing arrangements. There will still be advantages to leasing as far as the financial ratios are concerned. However, to maintain the validity of the lease the mentioned conditions must be met. Any lease contract should be inspected by an attorney to assure compliance with IRS regulations.

SELECTING A LEASING COMPANY

After the potential lessee has decided that he wishes to lease, knows what type of lease he wishes, and what is necessary to make it a true lease, he is then ready to select a leasing company. There are a number of characteristics that a potential lessee should look for in a leasing company.

Experience is one such characteristic. This is important in a financial or leveraged lease, but it is even more important in a maintenance lease. Experience brings with it knowledge, and this knowledge is more likely to bring lower rates and more efficient services.

The soundness of the lessor is very important as the official owner of the equipment can have a definite influence on the lessee's operations. If the lessor should go bankrupt, the effect can be chaotic. The headaches of replacing equipment and reorganizing the transportation function will be enormous.

It is important that the lessor negotiate directly with the suppliers, because one of the potential benefits to leasing is the buying power of the lessor.

The willingness of the lessor to be flexible on leasing arrangements is important because every leasing situation is different. The leasing company must be willing to make adjustments to fit lessee's operation. The lessee should not have to make adjustments to fit the lessor's operation.

The lessor's ability to raise capital quickly is very important in that the lessor should have the necessary liquidity to meet equipment needs when requested by a cooperative. There should be no need for a lessor to delay a purchase while waiting for sufficient funds.

Aggressiveness on the part of the lessor is important as it

enables him to get better prices for the equipment and he will more likely examine thoroughly all potential money saving ideas.

Reliability in the lessor is essential, because if the lessor cannot keep a promise, that places doubt on his ability to fulfill his other promises. The leasing companies' reputations should be examined and their financial ratings checked to determine if they can accomplish what they say they can accomplish.

When all is said and done the total cost to the lessee will be one of the most important factors. The purpose of any organization is to make money, and the lessor's bid, if not the best, should be competitive. Reputation and other services can shift the decision to someone who has a higher bid, but the bid should be competitive.

In 1971 a number of regional cooperatives formed Interregional Service Corporation (ISC), a cooperative leasing company, which had, as of December 31, 1976, $43.7 million worth of equipment and facilities on lease to cooperatives.

While ISC is organized as a Minnesota business corporation, its owners are all cooperatives. By organizing as a business corporation, rather than a cooperative, ISC is able to take advantage of available ITC and make use of accelerated depreciation as long as it operates with a true lease rather than a lease-purchase plan. Experience so far indicates that ISC is generating more ITC than it can currently utilize with its modest taxable income base. ISC is looking for an additional profit center which would add to a larger taxable income base without generating additional ITC.

One further reason for organizing as a business corporation is that ISC's distribution to its owners and lessees is via the cash dividend route, which does not add to the problem of revolvement of paper patronage retains.

Once the lease is signed the lessee is a type of partner with the lessor, so the lessee must look for the same sort of attributes that he would seek in a business partner.

CASE STUDIES

Findings thus far have centered on potential advantages and disadvantages and the considerations that should be made when choosing between leasing and buying. In the course of this research interviews were made with several cooperatives that had gone through this decision process and shared with the authors

the important considerations in their analyses. The following case studies are the decisionmaking processes of those cooperatives.

Case Study "A"

"Cooperative A" is one that handles farm supply products for its members. The members, who are its customers, are located essentially in one geographical region within a radius of 200 miles. Before the option of leasing was considered, this cooperative owned all of its transportation equipment. Several years ago management decided that due to the desirability of a more even cash flow, and a wish to utilize the investment tax credit more advantageously, it would lease its vehicles. The accounting department undertook to study the buy-versus-lease alternatives. There was no cash flow or formal present value analysis made in the study. The result of the economic analysis was that there was no real financial difference between the two options. However, the leasing organization's ability to purchase the vehicles at a lower cost did influence the decision and convinced management to lease. When asked what were the qualitative factors that led them to leasing, an organization spokesman cited the standardization of equipment, the lessening of management's contact with vendors, and the leasing company's assistance with warranties. The cooperative is presently leasing more than 100 vehicles, and management has found that the lessor's expertise has been very useful in obtaining the type of equipment needed. However, the cooperative is not convinced that the leasing company is handling the disposal of the vehicles to its best advantage. The feeling is that the lessor is selling the used equipment without taking full advantage of the ups and downs of the used truck market. Another question is: At what moment is equipment costing more in maintenance than it is worth to keep? This is an important point that "Cooperative A" would like answered. The type of lease utilized is a financial lease. The cooperative handles its own maintenance, since the range that the trucks travel is relatively narrow and it has the capability of handling repairs in its own shops. It maintains several regional shops and has replacement vehicles ready to substitute if breakdowns occur. The cooperative has a buy option in the lease which gives it first call on the vehicles but no price advantage.

The cooperative is pleased with the leasing arrangement and feels it is getting good service. In addition, it is saving money on the purchase prices (about 6 to 18 percent). It also feels that the

savings in time spent supervising the transportation function allows management more time to focus on the main thrust of its business.

Case Study "B"

"Cooperative B" is a large regional cooperative whose operations are spread over several States, and its products are marketed throughout the United States. Ten years ago it decided to investigate leasing as a viable alternative and started leasing on a small scale. The cooperative's leasing gradually increased until it now leases about 30 vehicles.

Upon initiating an investigation into leasing, a study was made by the transportation department. The study, though relatively comprehensive, did not include a cash flow. The result of the study showed that buying would be less expensive; however, management decided the best strategy would be to lease. Why was this decision made? Because management felt that the additional cost of leasing was worth the assurance that if one of its trucks broke down on the road several hundred miles from home a substitute vehicle would be immediately available. Another consideration was the savings of time to management by not having to worry about maintenance and other vehicle problems. The leasing company handles such affairs as licenses and gas; however, the cooperative still carries its own insurance. Another aspect of leasing that appealed to "Cooperative B" was the benefit of the investment tax credit and accelerated depreciation that the leasing arrangement provided. The depreciation and tax benefits are returned to the lessee through lower rates. The cooperative did not consider buying power to be an advantage as it felt it could buy as inexpensively as the leasing company.

"Cooperative B" investigated several leasing companies and did not take the lowest bid. The company it ultimately signed with had an excellent reputation in the field, and it felt that the $.015 per mile differential was worth the security of knowing that a highly successful organization would be more likely to stand behind its equipment.

The lessor writes the vehicles off in 4 years, assuming a 10 percent salvage value. The cooperative is very satisfied with the leasing arrangement. The feeling within the cooperative is that buying is a less expensive method of handling its vehicle fleet, but in its case leasing provides better service and places less of a bur-

den on management resources. These considerations are more qualitative in nature than quantitative, but they were sufficient to make leasing the more desirable alternative for this cooperative.

Case Study "C"

"Cooperative C" is a large cooperative dealing with various agricultural products on a national basis. Three years ago it decided to investigate the possibility of leasing, because at that time it was expanding its line of products, which required specialized transportation equipment to meet the needs of the distribution program.

A study was undertaken to determine the comparative profitability of the two alternatives, which were to buy or to lease. A present value analysis was made utilizing the corporate interest rate that prevailed at the time. The analysis showed that leasing was the more profitable strategy, and the cooperative made the decision to lease 20 vehicles with refrigerated trailers. The full service lease was utilized as it provided for substitute vehicles in case of breakdowns on over the road hauls. The lessor also tests the lessee drivers and, if necessary, trains them. The lessor handles all licensing and permits for the lessee, which relieves the cooperative's management of a considerable burden.

"Cooperative C" was able to utilize the investment tax credit and the accelerated depreciation by having the lessor take the credit and passing back some of the benefits in the form of lower rates. The depreciation schedule for the truck tractors is 3 years and for the trailers it is 5 years; both have a 10 percent salvage value.

The cooperative has eliminated some of management's workload with the lease, and the management staff is now able to devote attention to other matters. The rate arrangement for the lease is on a mileage basis plus a fixed monthly charge per vehicle. There is a buy option on the equipment at the end of the lease term, and an automatic buy requirement in case of the early termination of the agreement.

"Cooperative C" indicated that, from an economic standpoint, it could probably provide all the services for itself that the leasing company is providing. However, it could not justify the cost of the additional spare vehicles required to protect against delivery losses due to breakdowns on the road. The cooperative

lessee is quite satisfied with its leasing arrangment and has no plans to change.

Case Study "D"

"Cooperative D" is a large regional cooperative operating over several States. It initially owned its own truck fleet which was occasionally supplemented with short-term leasing during peak periods. Recently it was approached by a lessor who offered to supply leased trucks on a mileage basis with an incentive clause that would reduce the mileage charge by 50 percent after a vehicle exceeded 80,000 miles in 1 year. The offer attracted "Cooperative D," and it leased seven of its truck tractors on a maintenance contract (it does not lease any trailers).

The strategy of this cooperative is to continue to own all of the trucks operating out of the headquarters distribution center, where it can watch over and control the equipment maintenance program. For those trucks operating out of the forward distribution warehouses it is going to a full service type lease. In this way the leasing company will be responsible for maintenance and replacement vehicles on those trucks operating in the outlying areas.

One of the advantages gained from leasing is that it liberates funds to use as additional working capital in daily operations.

"Cooperative D" made no formal study of leasing. This was purely an experimental decision for them. The lessor is taking the tax advantages and is passing a part of them back to the lessee in the form of lower rates. The rates turned out to be excellent; in fact, the cooperative utilizes the leased trucks as much as possible in order to capitalize on the incentive mileage rate which, in its opinion, is lower than what it is operating its own trucks for. The lessor depreciates the tractors over 4 years and uses a 15 percent residual value. There is a buy option at the end of the lease but it gives no special advantage to "Cooperative D." The lessor has helped the cooperative with licensing and inspections, but "Cooperative D" feels that it has not gained any advantages as far as the cost of the equipment is concerned.

The cooperative is very pleased with the arrangement and plans to increase the number of leased vehicles in the future. The maintenance advantages and the mileage incentives are considered to be the most attractive features of the lease.

PRESENT VALUE CASH FLOW EXAMPLES

In any business decision it is advantageous to analyze alternatives from a purely quantitative point of view. Although most decisions have other considerations besides the quantitative, for measurement purposes, it is useful to ascertain quantitative differences. The method most often used to compare quantitative considerations is the present value cash flow.

Present value is the equivalent value now of future dollars spent or received, discounted back from a specified future due date to the present date at a given rate of compound interest (discount). For example, $1 due 2 years in the future when discounted back at 5 percent compound interest for 2 years has a present value of $.907. We know that $1 invested at 5 percent per period has a future value of (1.05)n dollars due in n periods (n=years 1,2,3, etc.). The present value is the reciprocal of the future value. This means that instead of multiplying present monies by your factor future values, monies received at some time in the future are divided by the discount factor. For example, $1 received at the end of three periods discounted at 5 percent will be worth $1.00 divided by (1.05) times 3 or $.86.

To illustrate the use of present value cash flows in our decision-making process we have devised a hypothetical situation. The cash outflow of our alternatives happens at different times over the life of the vehicles, thus making it necessary to utilize present value. The example analysis shows the present value of a $120,000 vehicle investment utilizing equity financing (table 1), debt financing (table 2), and lease financing (table 3). The assumptions are that there is a 10 percent discount rate, a 5 year projected life, a 7 percent prime rate (cost of debt), and cash receipts and expenses are equivalent for all these alternatives. No consideration was given to the investment tax credit, and it was assumed that buying power would be roughly equivalent.

The result of the present value cash outflow shows that debt financing is the least costly alternative, lease financing next, and equity financing the most expensive. These calculations show the strictly quantitative side of the lease-or-buy decision.

Table 1—Ownership cash flow present value utilizing equity

Item	Present value	Year 1	Year 2	Year 3	Year 4	Year 5
Purchase	-$120,000					$24,000
Profit on sale[1]						.620
10% present value discount	1,000					$14,880
Present value	-$120,000					
Total cash outflow						-$96,000
Present value of cash outflow						-$105,120

[1]Estimated at 20%.

Note: Investment—$120,000.
60-month life—no book residual.
Tax exempt cooperative.
All funds paid or received at end of year.
Outright purchase—no financing (equity financing).

Table 2—Ownership cash flow present value utilizing debt

Item	Year 1	Year 2	Year 3	Year 4	Year 5
Debt retirement	-$24,000	-$24,000	-$24,000	-$24,000	-$24,000
Interest	-10,500	- 8,400	- 6,300	- 4,200	- 2,100
Profit on sale[1]					24,000
Annual cash outflow	-$34,500	-$32,400	-$30,300	-$28,200	$2,100
10% present value discount	.909	.826	.751	.683	.620
Present value	-$31,360	-$26,762	-$22,755	-$19,261	-$1,302
Total cash outflow					-$127,500
Present value of cash outflow					-$101,440

[1]Estimated at 20%.

Note: Purchase - Financed at 7% with 20% compensating balance.
Effective Interest Rate - 8.75%. Principal.
Amortized 20% annually.

Table 3—Lease cash flow present value—analysis

Item	Year 1	Year 2	Year 3	Year 4	Year 5
Lease cost	-$35,006	-$32,875	-$30,686	-$28,512	-$25,920
Less: Profit on sale[1]					24,000
Annual cash outflow	-35,006	-32,875	-30,686	-28,512	$1,920
10% present value discount	.909	.826	.751	.683	.620
Present value	-$31,820	-$27,155	-$23,045	-$19,474	$1,190
Total cash outflow					-$128,999
Present value of cash outflow					-$102,684

[1]Estimated at 20%.

Note: Cost of equipment—$120,000.
60-month lease.
Lease cost based upon 7% prime rate.
All funds paid or received at end of year.
Present value of 60-month lease on $120,000 equipment value with 20% receovery on original investment.

CLOSING NOTE

FCS has found that leasing, in general, will cost a little more, but if a lease is carefully selected and tailored to the need, the additional cost will buy an equivalent value in improved cash flow, debt equity ratio, or in a far-flung maintenance program.

If a prospective lessee examines the different characteristics of leasing discussed in this report, he should be able to determine what his best course will be. The study should also help him to select the right lessor. The result should be the establishment of a long and mutually beneficial contract arrangement with a leasing company that has compatible goals.

FCS PUBLICATIONS AVAILABLE

Advising People About Co-ops. C. H. Kirkman, Jr., and Paul O. Mohn. Program Aid 1147. 1976. 20 pp.

What are Cooperatives? C. H. Kirkman, Jr. FCS Information 67. 1975. 10 pp.

Transportation Activities—Selected Farmer Cooperatives. Earl B. Miller. FCS Information 96. 1974. 15 pp.

Opportunities for Improving Cooperative Fruit and Vegetable Transportation and Distribution. Eldon E. Brooks, Martin A. Blum, William A. Hand, James R. Jacks. FCS Special Report 22. 1976. 79 pp.

For copies, write: Farmer Cooperative Service, U.S. Department of Agriculture, 500 12th St., S.W., Washington, D.C. 20250.

FARMER COOPERATIVE SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Farmer Cooperative Service provides research, management, and educational assistance to cooperatives to strengthen the economic position of farmers and other rural residents. It works directly with cooperative leaders and Federal and State agencies to improve organization, leadership, and operation of cooperatives and to give guidance to further development.

The Service (1) helps farmers and other rural residents obtain supplies and services at lower cost and to get better prices for products they sell; (2) advises rural residents on developing existing resources through cooperative action to enhance rural living; (3) helps cooperatives improve services and operating efficiency; (4) informs members, directors, employees, and the public on how cooperatives work and benefit their members and their communities; and (5) encourages international cooperative programs.

The Service publishes research and educational materials and issues *Farmer Cooperatives*. All programs and activities are conducted on a nondiscriminatory basis, without regard to race, creed, color, sex, or national origin.